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THE PLANT DISEASE BULLETIN

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The Plant Disease Survey

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THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

Vol. III Number 6.

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BARLEY

Covered smut caused by Ustilago hordei.

Arizona: (Brown, August 1.) Loss slightly greater than that caused by loose smut. Probably about 1% crop loss.

Colorado: (Leach, August 1.) Very generally present, ranging from 1-10%. First observed May 29 at Fort Collins.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Found in 5 fields out of 30 examined in amounts ranging from a trace to 4% (average .3%). Only 2 fields were sown with seed treated with formalin (wet method). Both of these fields were free from smut.

Kansas: (Melchers, August 1.) Present in most fields. State average loss about 4%.

Minnesota: (Stakman, August 1.) Reported from about 27 counties in the southern part of the state, usually in small amounts. Highest amount reported thus far about 8% in Dakota County.

Missouri: (Results of Cereal Disease Survey, June 12-28). Three of the 6 fields inspected were infested in amounts ranging from a trace to 3% (average .8%). One field, not infested, was planted with seed treated with formaldehyde, 1-40.

Montana: (Jennison, August 1.) Damage less than usual this year. This is probably due partly to the extreme dryness of the season and partly on account of more general and successful control treatments.

Nebraska: (Results of Cereal Disease Survey, July 1-2.) Found in 2 out of the 4 fields inspected as a trace and 3%. The trace was reported from a field sown with formaldehyde treated seed. State average .7%.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 6 of 10 fields inspected in amounts ranging from a trace to 15%. (Average 2.6%). Highest percentage found in Montgomery County.

Pennsylvania: (Results of Cereal Disease Survey, July 9-17.) Found in 9 of the 11 fields inspected in amounts ranging from a trace to 4%. (Average in State, .6%).

Tennessee: (Results of Cereal Disease Survey, May 30-June 2.) Found in 3 out of the 5 fields inspected in amounts of 8 and 10%. (Average 5.2%).

Vermont: (Lutman, August 1.) This smut, together with the loose smut, is estimated as causing from 2-5% loss in the state.

Loose smut caused by Ustilago nuda.

Arizona: (Brown, August 1.) About 1/2% loss in the state.

Colorado: (Leach, August 1.) Observed first about June 1, ranging from a trace to 3%

Indiana: (Gardner, August 1.) Not serious.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Recorded from 20 of the 30 fields inspected in amounts ranging from a trace to 2% (average .5%).

Kansas: (Melchers, August 1.) Present in some fields. State average about 3%.

Minnesota: (Stakman, August 1.) Trace reported in about 32 counties. No reports of over 3%, mostly 1% or less.

Missouri: (Results of Cereal Disease Survey, June 12-28.) The 6 fields examined were infested in amounts ranging from a trace to 4% (average 1.5%).

Montana: (Jennison, August 1.) Upwards of 2% loss. It is doubtful if the losses caused by this disease have been diminished from that of previous years. In many fields the actual damage was difficult to determine on account of drought.

Nebraska: (Results of Cereal Disease Survey, July 1-2.) Found in 2 of the 4 fields inspected as 1 and 3%, state average 1%.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Occurred in 5 of the 10 fields inspected in amounts ranging from a trace to 25% (average 3.1%). Highest percentage found in Montgomery County.

Tennessee: (Results of Cereal Disease Survey, May 30-June 2.) Observed in 4 of the 5 fields inspected in amounts ranging from 1-4% (Average 2.2%).

Stripe caused by Helminthosporium gramineum.

Colorado: (Leach, August 1.) Very severe and wide spread. Observed first about June 25, but was far advanced at that time. A few fields showed as high as 25% of plants completely killed.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Reported as being very slight to very abundant in 14 out of the 30 fields examined. In one field 80% of the plants were affected.

Kansas: (Melchers, August 1.) Occurred in 1 or 2 instances where seed was brought in from other states. No great damage, however. It does not seem to occur in fields planted with native seed.

Michigan: (Coons, August 1.) Common. The early attack was exceptionally severe. Secondary infection checked on account of exceedingly dry, hot weather. The amount to be expected for next year, therefore, is small.

Minnesota: (Stakman, August 1.) Reports so far received indicate considerable stripe. Often the disease is associated with net and spot blotch.

Missouri: (Results of Cereal Disease Survey, June 12-28.) One field in Clark County slightly infested.

Montana: (Jennison, August 1.) No typical cases seen.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 6 of the 26 fields inspected, in amounts ranging from slight to very abundant.

Pennsylvania: (Results of Plant Disease Survey, July 9-17.) Present in 2 of the 11 fields inspected in amounts ranging from slight to considerable.

Tennessee: (Results of Cereal Disease Survey, May 30-June 2.) Found in 2 of the 5 fields examined in slight and considerable amounts.

Stem rust caused by Puccinia graminis.

Arizona: (Brown, August 1.) One county (Yuma) reported 1% loss on 500 acres. While rust is reported from other places, no loss is mentioned in connection with it.

Colorado: (Leach, August 1.) Generally present over state, but is not very heavily infested.

Iowa: (Results of Cereal Disease Survey, June 27-July 18) Found in 24 out of the 30 fields visited in amounts varying from a trace to 75% (average 16.9%).

Kansas: (Melchers, August 1.) Occurred in slight amounts in most fields. No damage.
Michigan: (Coons, August 1.) Exceedingly common, probably doing damage up to 10%. Dry weather cut the crop in two.
Minnesota: (Stakman, August 1.) From reports so far received only a few cases of other than very slight infection have been found. There have been one or two reports of from 10 to 20% infection.
Missouri: (Results of Cereal Disease Survey June 12-28.) A trace found in 1 of the 6 fields examined.
Montana: (Jennison, August 17.) None seen on barley.
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) A trace to 3% found in 2 of the 10 fields examined.
(Van Pelt, August 1.) Light attack, not reported as general.
Vermont: (Lutman, August 1.) Five to 10% found locally at Burlington.

Spot blotch caused by Helminthosporium sativum.

Indiana: (Gardner, August 1.) Very common.
Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Reported as ranging from slight to abundant in 9 of the 30 fields inspected.
Minnesota: (Stakman, August 1.) Common.
Missouri: (Results of Cereal Disease Survey, June 12-28.) Reported as being abundant in 5 fields out of the 6 inspected.
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 2 of the 10 fields examined, ranging from slight to very abundant.
Pennsylvania: (Results of Cereal Disease Survey, July 9-17.) Found in 8 of the 11 counties inspected, ranging from very slight to abundant.
Tennessee: (Results of Cereal Disease Survey, May 30-June 2.) Found in 1 out of the 5 fields inspected. Reported from Putnam County as very abundant in one particular case.
Vermont: (Lutman, August 1.) 2-5% of leaves infected.

Net blotch caused by Helminthosporium teres.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Reported as being slight to abundant in 17 out of the 30 fields inspected.
Missouri: (Results of Cereal Disease Survey, June 12-28.) Considerable amounts found in 4 of the 6 fields inspected.
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found abundantly in 3 of the 10 fields examined.

Leaf rust caused by Puccinia simplex.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) From a trace to 75% (average 15.5%) was found in 17 out of 30 fields.
Missouri: (Results of Cereal Disease Survey, June 12-28.) A trace to 25% was found in 3 of the 6 fields examined, (average 12.5%).
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Reported from 1 of the 10 fields inspected.
Oregon: (Barss, August 1.) A trace reported.
Pennsylvania: (Results of Cereal Disease Survey, July 9-17.) Found in 6 of the 11 fields inspected in amounts ranging from a trace to 40% (average 10.9%).
Tennessee: Found in 1 of the 5 fields inspected as a 10% infection.

Scab caused by Fusarium spp.

Missouri: (Results of Cereal Survey, June 12-28.) All of the 6 fields inspected showed scab, ranging in amounts from .5% to 10% (average 3.7%). One field with 1% infection had been in wheat the previous year, the others in corn.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 2 of the 10 fields inspected, as a trace and 1%.

Pennsylvania: (Results of Cereal Disease Survey, July 9-17.) Found in 2 of the 11 counties inspected.

Tennessee: (Results of Cereal Disease Survey, May 30-June 2.) Found in 3 out of the 5 fields inspected in amounts varying from a trace to 40% (average 2%).

Other diseases

Ergot, was found in slight and very slight amounts in Iowa and Missouri by men engaged in cereal disease survey.

Powdery mildew, was found in a considerable amount in 1 of the 11 fields examined in Pennsylvania, and very abundant in one of the 5 fields inspected in Tennessee by men engaged in cereal disease survey.

Anthracnose, was found abundant in 1 of the 5 fields inspected in Tennessee by men engaged in cereal disease survey.

Leaf spot, was reported in 3 of the 30 fields examined in Iowa in amounts ranging from 10 to 20% (average 15%).

OATS

Smut caused by Ustilago avenae and U. levis.

Illinois: (Results of Cereal Disease Survey, June 18-28.) Of the 31 fields inspected, 7 were infested with covered smut, ranging from a trace to 4% (average a trace).

Loose smut was found in 28 fields in amounts ranging usually from 1% to 50% (average 5.9%).

Four fields were planted with seed treated with formaldehyde. All of these were free from covered smut; two had 1% and one a trace of loose smut.

Indiana: (Gardner, August 15.) Present about as usual.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) Covered smut was reported from 41 of the 78 fields inspected in amounts ranging from a trace to 8% (average .3%).

Loose smut was reported from 47 of the 78 fields examined in amounts ranging from a trace to 6% with the exception of one field in Scott County which had as high as 24% infection. The average amount for the state was .6%. Ten fields were sown with seed treated with formaldehyde 1-40, and 3 fields with formaldehyde 1-1. The treatments were usually successful in controlling smut, although the seed for the field with 24% infection was said to have been treated. Two other fields sown with treated seed showed some disease, one (dry method) having 1% and the other (wet method) having a trace.

Massachusetts: (Osmun, August 15.) Very little smut this year as compared with other years, probably only a small fraction of 1%.

Minnesota: (Stakman, August 15.) Highest percentage reported so far is 8%. In most cases only a trace or 1 or 2% was found. Treatment apparently is not very general in the southern counties, but in the Red River Valley most of the seed was treated this year.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Covered smut was found in 53 of the 101 fields examined in amounts to 20% (average 2%).

Loose smut was found in 74 of the 101 fields inspected in amounts ranging from a trace to 26% (average 2.9%).

Nebraska: (Results of Cereal Disease Survey, June 27-July 3.) Covered smut was reported from 7 of the 13 fields inspected in amounts varying from a trace to 6% (average .7%). One of the 6 fields sown with formaldehyde treated seed showed a trace of infection.

Loose smut was also found in 7 of the 13 fields inspected in amounts ranging from a trace to 3% (average 1%). Two of the fields sown with seed treated with formaldehyde showed a trace of infection.

New Jersey: (Cook, July 15.) -Common, 3-10%.

New Mexico: (Leonian, July 15.) Can be found in almost every field, but is very slight.

North Dakota: (Bolley, August 15.) Not particularly abundant in the state this year, at least not so prevalent as in most years. The amount of infection depends largely upon the failure of the farmers to treat the seed. Treatment in state was almost universal, however.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Covered smut was reported from 12 of the 26 fields inspected in amounts ranging from a trace to 24% (average 3.4%). Four cases of infection ranging from a trace to 14% were reported from the 6 fields sown with formaldehyde treated seed.

Loose smut was found in 18 of the 26 fields examined in amounts varying from a trace to 24% (average 4.7%). Three of the 6 fields sown with formaldehyde treated seed were reported infected, 2 with a trace and one with 7%.

Pennsylvania: (Results of Cereal Disease Survey, July 8-18.) Covered smut was present in 49 of the 122 fields inspected in amounts ranging from a trace to 16% (average .8%). No cases of infection were found in the 29 fields sown with seed treated with formaldehyde (wet and dry method).

Loose smut was found in 96 of the 122 fields examined in amounts ranging from a trace to 30% (average 2.3%). Prevalent in all the counties inspected, but, with the exception of a few cases, in small percents. Eleven of the 29 fields sown with formaldehyde treated seed were found to be infested.

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Covered smut was present in 8 of the 38 fields inspected in amounts ranging from 1 to 40% (average 1.6%).

Loose smut was present in 27 of the 38 fields inspected in amounts varying from a trace to 25% (average 2.1%).

Vermont: (Lutman, August 15.) About the usual amount, 2-5%.

Wisconsin: (Vaughan, August 15.) Apparently much less than usual.

Leaf rust caused by Puccinia coronata.

Illinois: (Results of Cereal Disease Survey, June 18-28.) Infection was reported in 4 of the 31 fields inspected. All the infested fields were in Cass County.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) Seventy four of the 78 fields inspected showed leaf rust ranging from a trace to 65% (average 20.9%).

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Seventy nine of the 101 fields examined had infections ranging from a trace to 30% (average 5.9%).

Nebraska: (Results of Cereal Disease Survey, June 27-July 3.) Found in 4 of the 13 fields inspected in amounts from 5 to 25% (average 5.7%).

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Reported from 5 of the 26 fields examined in amounts ranging from 5 to 40% (average 2.3%).

Pennsylvania: (Results of Cereal Disease Survey, July 8-18.) Found in 43 of the 122 fields inspected, ranging from a trace to 100% (average 8.8%).

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Reported from 12 of the 38 fields inspected in amounts ranging from a trace to 65%. (average 4.2%).

Vermont: (Lutman, August 15.) Sixty to 70% on many fields around Burlington. As prevalent as last year when it was very serious. The Rhamnus cathartica question in New England might be investigated with profit.

Scab caused by Fusarium spp.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) Was reported from 38 of the 78 fields examined, ranging from a trace to 4% with as high as 45% in one field, Scott County,(average .6%.) The disease was most commonly found in Cherokee, Clay, and Kossuth Counties.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Traces of scab were reported from 19 of the 101 fields inspected.

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Was noted in 5 of the 38 fields examined, ranging from 1/2 to 2%. All cases of infection were found in Davidson County.

Stem rust caused by Puccinia graminis.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) From a trace to 5% with an average of .1% was found in 35 of the 78 fields inspected.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Observed in scattered localities in 10 fields of the 101 inspected, ranging from a trace to 16% (average .16%).

North Dakota: (Bolley, August 15.) Has done some damage to the later varieties of oats, but is not as destructive to oats as to wheat.

Blast cause undetermined.

Illinois: (Results of Cereal Disease Survey, June 18-28.) Blast ranging from slight to very severe was reported from 22 fields out of the 31 inspected.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) Reported as being from very slight to abundant in 62 fields out of 78.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Very slight to very abundant in 70 of the 101 fields inspected.

Largest amounts found in Atchison and Saline Counties.

Nebraska: (Report of Cereal Disease Survey, June 27-July 3.) Found in 12 of the 13 fields inspected, amounts from moderate to very abundant.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 6 of the 26 fields inspected, in amounts from slight to 16%.

Pennsylvania: (Results of Cereal Disease Survey, July 8-18.) Found in 113 fields out of the 122 inspected in amounts ranging from slight to abundant.

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Found in 25 out of the 38 fields inspected in amounts from very slight to abundant.

Bacterial blight caused by bacteria.

Iowa: (Results of Cereal Disease Survey, June 27-July 18.) Four fields out of the 78 examined were found to be infected in amounts from slight to abundant.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Six of the 101 fields inspected were found to be infected in slight or considerable amounts.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 2 of the 26 fields inspected. Both cases found in Clinton County and reported abundant.

Other diseases.

Powdery mildew, is reported from Missouri and Ohio by men engaged in Cereal Disease Survey. In the latter state it was found in 2 of the 26 fields visited, in one case in moderate amounts, in the other 15%.

Anthracnose, caused by Colletotrichum cereale was reported as very slight in one Missouri field.

Yellow leaf, is reported as being slight to abundant in 25 of the 101 fields examined in Missouri.

Black chaff, very slight in one field in Missouri.

Septoria, is reported in two fields in Missouri - one very slight and the other severe.

RYE

Stem rust caused by Puccinia graminis.

Minnesota: (Stakman, July 15.) Authentic reports received from seven counties, with one report of heavy infection. Earliest report June 20 from Blue Earth County.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Twelve of the 16 fields inspected were infested with stem rust in amounts from a trace to 25% (average 4.6%).

North Dakota: (Bolley, July 15.) Not present to any marked degree on any field seen. Rye early and out of the way, furthermore, barberries in this region are mostly destroyed and rye is not a common crop hence infection not likely.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in one out of 8 fields inspected.
Tennessee: (Results of Cereal Disease Survey, May 3-June 6.) Found in 3 out of the 12 fields inspected. Two fields showed a trace each and the other had 10%.

Leaf rust caused by Puccinia dispersa.

Illinois: (Results of Cereal Disease Survey, June 19-28.) Found in 6 of the 24 fields inspected, in amounts ranging from 5-10% (average 1.7%).
Minnesota: (Stakman, July 15.) Reported from 24 widely separated counties and said to be very abundant in some of these. The earliest report on winter rye was May 30, and on spring rye June 17, both at St. Paul.
Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Infections ranged from 5-65% affected leaf area (average 19%). Disease was found in 9 of the 16 fields examined.
North Dakota: (Dolley, July 15.) Not particularly destructive.
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 3 out of the 8 fields inspected in amounts ranging from 20-40% (average 11.2%).
Pennsylvania: (Results of Cereal Disease Survey, July 8-17.) Found in two fields out of the six examined, with about 10% affected leaf area in each case.
Tennessee: (Results of Cereal Disease Survey, May 30-June 6.) Found in 9 out of the 12 fields inspected in amounts ranging from 10-40% (average 13.3%).

Smut caused by Urocystis occulta.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Two infections in 16 fields examined. In one of the fields there was a trace and in the other field considerable. In this latter field the seed was said to have been treated with formaldehyde 1-40.
Ohio: (Results of Cereal Disease Survey, June 17-July 2.) Found in 5 out of the 8 fields inspected in amounts ranging from a trace to 8% (average 1.6%).

Anthracnose caused by Colletotrichum cereale.

Illinois: (Results of Cereal Disease Survey, June 19-28.) Six of the 24 fields inspected were reported as having from slight to moderate infections of anthracnose.
Missouri: (Results of Cereal Disease Survey, May 26-June 28). One slight infection in Atchinson County and 3 fields with from slight to considerable in Knox County. Found in 4 fields out of 16 inspected.
Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 1 out of 8 fields inspected in very slight amounts.
Pennsylvania: (Results of Cereal Disease Survey, July 8-17.) Found in all of the 6 fields inspected in amounts ranging from slight to severe.
Tennessee: (Results of Cereal Disease Survey, May 30-June 6.) Found in 6 of the 12 fields inspected in amounts ranging from slight to severe.

Scab caused by Fusarium spp.

Illinois: (Results of Cereal Disease Survey, June 19-28.) Infections averaging 3.8% were reported from 8 of the 24 fields inspected. One field showed 90% scab; in the remainder the amounts varied from a trace to 2%.

Two fields, including the badly diseases one, had been planted to corn the preceding year; in 5 the rye followed wheat, in one rye had been grown.

Minnesota: (Stakman, July 15.) Found in 13 counties. In one field 50% of the heads were infected. In another field which had been planted to corn last year scab was abundant and Gibberella was found fruiting on the corn stubble. The earliest report was June 19 in Ramsey County.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) From a trace to 15% (average 7%) was found in 12 of the 16 fields examined. Six of these fields had been in corn the year before, 3 in rye and one in wheat.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in three out of 8 fields inspected in amounts ranging from a trace to 5% (average .7%).

Pennsylvania: (Results of Cereal Disease Survey, July 8-17.) Traces found in two out of 6 fields inspected.

Tennessee: (Results of Cereal Disease Survey, May 30-June 6.) Found in 4 out of the 12 fields inspected in amounts ranging from a trace to 17% (average 1.6%).

Ergot.

Illinois: (Results of Cereal Disease Survey, June 19-28.) Very slight to abundant in all but two of the 24 fields inspected.

Missouri: (Results of Cereal Disease Survey, May 26-June 28.) Found in 4 fields out of 16 examined in very slight to considerable amounts.

North Dakota: (Bolley, July 15.) Reported from many parts of the state and observed in numerous fields, but not quite as pronounced this year as in previous years. However, it is sufficiently abundant to indicate that this disease is to become one of the most destructive and difficult to handle of the rye troubles in this state.

Ohio: (Results of Cereal Disease Survey, June 17-July 3.) Found in 3 out of the 8 fields inspected. Two cases are reported as severe and one case as considerable.

WHEAT

Bunt caused by Tilletia laevis and T. tritici.

Illinois: (Results of Cereal Disease Survey, June 18 to 28.) An average of .3% of bunt was found in 10 of the 92 fields inspected; in Grundy County one field with 24%; in Mason County 7 fields with a trace and 2 fields with 1% each.

Iowa: (Results of Cereal Disease Survey, June 27 to July 19.) Found in 49 out of the 214 fields inspected. In one field in Harrison County the amount of disease was 28%. In the others it ranged from a trace to 6% (average for state .5%). Most often found in Monona, Harrison, and Cass Counties.

Missouri: (Results of Cereal Disease Survey, May 31 to June 27.) Found in 245 of the 562 fields examined, in amounts ranging from a trace to 40% (average 1.2%). The seed for 15% of these fields had been treated with formaldehyde. In 50 of the treated fields small amounts of smut were found. Thirteen fields were planted with grain treated

with copper sulphate in various strengths, and 4 of these showed traces of bunt. Only 13% of the 75 fields of Turkey Red wheat were affected, while 77% of the 22 fields of Harvest Queen showed disease. Fifty-five and 50 per cent of the fields of Red Wave and Fultz were affected respectively.

Montana: (Jennison, August 1). Three percent or more reduction in yield on spring wheat was brought about by bunt. Much effective treatment was done and it is believed that the drought tended to hold down the amount of infection.

Nebraska: (Results of Cereal Disease Survey, June 27 to July 3.) Found in 37 out of the 67 fields inspected in amounts ranging from a trace to 32% (average 2.4%). Four of the seventeen fields sown with formaldehyde treated seed showed smut, ranging from a trace to as high as 10%.

New Mexico: (Leonoan, July 1). Some fields very badly affected, but while generally present in state it is not causing heavy damage except in some isolated cases.

Ohio: (June 12 to July 3.) Found in 162 of the 283 fields inspected in amounts ranging from a trace to 42% (average 2.1%). Sixteen fields were reported treated with formaldehyde (wet method) and seven fields were said to have received formaldehyde dry method. Traces of bunt were found in 16 of these fields, the seed for which was treated, and in a few instances the precentage of disease ran considerably higher than a trace, probably due to some imperfection in the method of treatment.

Pennslyvania: (Results of Cereal Disease Survey, July 8 to 18.) Occurred in 12 out of 105 fields inspected in amounts ranging from a trace to 12% (average a trace). The disease occurred in highest percentages in Lehigh County. The seed for 6 out of 105 fields were treated with formaldehyde 1 to 40. No cases of infection were found in fields the seed for which had been treated.

Tennessee: (Results of Cereal Disease Survey, May 30 to June 7.) Found in 57 out of 177 fields inspected in amounts ranging from a trace to 15% (average .5%). Highest percentages observed in Davidson County. Only 3 out of 35 fields sown with treated seed showed disease in amounts ranging from a trace to 1%.

Loose smut caused by Ustilago tritici

Illinois: (Results of Cereal Disease Survey, June 18 to 28). Infections ranging from a trace to 2%, with 20% in 2 fields (in Jackson and Mason Counties), averaging .8%, were reported from 64 fields out of 92.

Iowa: (Results of Cereal Disease Survey, June 27 to July 19). Found in 130 of the 214 fields inspected in amounts ranging from a trace to 3%. (average .3%). No hot water treatments were reported.

Missouri: (Results of Cereal Disease Survey, May 31 to June 27). Found in 522 out of the 562 fields inspected in amounts ranging from a trace to 18% (average 1.5%). No hot water treatment reported.

Montana: (Jennison, August 1). An estimated damage of 1% or more was done in spring wheats by loose smut.

Nebraska: (Results of Cereal Disease Survey, June 27 to July 3). Found in 45 out of the 67 fields inspected in amounts ranging from a trace to 6% (average 1.1%).

Ohio: (Results of Cereal Disease Survey, June 12 to July 3). Found

in 240 out of 283 fields inspected in amounts varying from a trace to 34% (average 2%). The disease is generally distributed throughout the counties inspected.

Pennsylvania: (Results of Cereal Disease Survey, July 8 to 18). Found in 97 out of the 105 fields examined in amounts ranging from a trace to 8% (average .7%).

Tennessee: (Results of Cereal Disease Survey, May 30 to June 7.) Found in 144 out of 177 fields inspected in amounts varying from a trace to 8% (average .8%). Prevalent in practically all counties inspected although in slight amounts.

Scab caused by Fusarium spp.

Illinois: (Results of Cereal Disease Survey, June 18 to 28.) In 113 of the 127 fields inspected (35 in Lake and McHenry Counties were not included in the averages for other diseases), there was an average amount of 3.1% of scab. The infection varied from a trace to 95%, usually between a trace and 5%. The most badly infested fields were in Jackson County.

Wheat had been grown in 39 of these fields in the year before, corn in 26, oats in 4, miscellaneous crops in 11; for the remaining 33 fields the rotations were not reported.

Iowa: (Results of Cereal Disease Survey, June 27 to July 19.) The reports show scab to be very prevalent and causing serious damage. A trace to 98% (average 41.8%) of the disease was found in 213 of the 214 fields examined. The estimated yield ranged from none to 35 bushels (average 11.8 bushels per acre). Rotations for these fields and corresponding amounts of infection were reported as follows; corn last year, 140 fields, average infection 40.9%; wheat last year, 19 fields, average infection 37%; oats last year, 16 fields, average infection 30.4%; miscellaneous 4 fields; rotation not reported, 35 fields. The accompanying tabulation shows the varieties most commonly planted with the number of fields and the minimum, maximum and average infection for each variety.

Variety	No. fields	No. following corn	Min. %	Max. %	Av. %
Marquis	87	67	4	98	66.8
Turkey Red	54	25	1.75	75	21.8
Early Java	31	23	5	85	37.2
Preston	5	5	3	17	8.1

Minnesota: (Stakman, August 15.) Reported in 48 counties, all but five of which are in the southern half of the state. Heaviest percentage of infection was reported from Rock, Martin and Faribault Counties in the southern tier. The disease is also very general along the northern banks of the Minnesota. Washington County, on the St. Croix, also is reported as having large amounts of scab. In most of the remaining counties the disease ranges from about 5 to 10% affected heads.

Marquis is most susceptible, although considerable disease is often reported on Velvet Chaff and Blue Stem. Neighboring fields of Marquis and Velvet Chaff showed 100% and 15% infections respectively. Many of the varieties on University Farm are found susceptible.

A seedling blight disease was very prevalent in the Red River Valley and some other parts of the state in the latter part

of May and early June. The scab organism was isolated from many of these seedlings, although Helminthosporium was often also present. The disease often appeared in spots causing a complete failure in the diseased area.

Missouri: (Results of Cereal Disease Survey, May 31 to June 27). The disease was found in all but 60 of the 562 fields inspected. The infections ranged from a trace to 90% (average about 4.2%). The crops planted in the affected fields last year were as follows: wheat, 309 fields; corn, 88 fields; oats, 36 fields; miscellaneous crops, such as rye, legumes, pasture, etc., 21 fields; not reported, 48 fields.

Nebraska: Found in 21 out of the 67 fields inspected in amounts varying from a trace to 10% (average 1.2%).

North Dakota: (Bolley, July 15). An especially heavy infection on the Durum and Marquis strains. Under wet conditions the destruction of the crop was great.

Ohio: (Results of Cereal Disease Survey, June 12 to July 3). Found in 252 out of the 283 fields inspected in amounts ranging from a trace to 80% (average 6.9%).

Pennsylvania: Found in 92 out of the 105 fields inspected in amounts ranging from a trace to 10% (average 1.1%).

Tennessee: Found in 143 out of 177 fields inspected in amounts varying from a trace to 30% (average about .8%).

Stem rust caused by Puccinia graminis

Illinois: (Results of Cereal Disease Survey, June 18 to 28). Found in amounts averaging 5/8% in 62 of the 92 fields examined. Infections ranged from a trace to 75% (2 fields in Jackson Co.), usually between a trace and 5%. No especially resistant or susceptible varieties were noted.

Iowa: (Results of Cereal Disease Survey, June 27 to July 19). Reported from 192 of the 214 fields examined in amounts varying from a trace to 100%, but usually ranging from 10 to 50% (average 20.1%).

Kansas: (Melchers, August 11.) Present in varying amounts, but no damage recorded.

Minnesota: (Stakman, August 15). Has been reported in all but 14 of the Minnesota counties. Thirteen of these counties are north of the central portion of the state and have not been visited by the scouts.

Reports indicate a very large amount of damage. Infection of rust on plants varies from 9 to 100% and is very general. Scouts found grain nearly mature and even cut in many cases, so that estimates were difficult. The estimate yields ranged from 8 to 15 bushels per acre. Scab is probably responsible for part of this damage.

Missouri: (Results of Cereal Disease Survey, May 31 to June 27). Found in amounts from a trace to 75% (average 7.8%) in 361 of the 562 fields inspected.

Montana: (Jennison, August 1). Insignificant and found in only one or two isolated cases. These occurred on wheat grown in the vicinity of barberries which had not been removed.

Nebraska: Results of Cereal Disease Survey, June 27 to July 3). Found in 22 out of the 67 fields inspected in amounts varying from a trace to 75% (average 1.6%).

New Mexico: (Leonian, July 1). Generally present; not causing serious damage.

North Dakota: (Bolley, July 15). Heavy general infection indicating destruction if weather conditions remain favorable.

Ohio: (Results of Cereal Disease Survey, June 12 to July 3). Found in 21 out of 283 fields inspected in amounts varying from a trace to 50% (average 3.6%).

Pennsylvania: Found in 35 out of 105 fields inspected in amounts ranging from a trace to 25% (average 1%). Fulcaster wheat was sown in 9 out of 11 fields inspected in Lancaster County where stem rust was most commonly found.

Tennessee: (Results of Cereal Disease Survey, May 30 to June 7). Found in 8 out of the 177 fields inspected in amounts ranging from a trace to 8% (average .1%).

Leaf rust caused by Puccinia dispersa

Illinois: (Results of Cereal Disease Survey, June 18 to 28). From 1% to 40% (average 12.7%) in 80 of the 92 fields inspected.

Iowa: (Results of Cereal Disease Survey, June 27 to July 19). Reported in amounts ranging from a trace to 100% (average 48%) in 208 out of the 214 fields examined.

Kansas: (Melchers, August 1). Very prevalent on leaves and stems.

Minnesota: (Stakman, August 15). Very generally distributed and running as high as 100% affected area. Many reports of 25 to 60% are at hand. Reported especially from the southern part of the state.

Missouri: (Results of Cereal Disease Survey, May 31 to June 27). Found in 505 out of 562 fields examined in amounts ranging from a trace to 100% (average 39%).

Montana: (Jennison, August 1). Noted in a number of instances, especially on soft wheats. Restricted, however, to relatively small areas where abundant irrigation is given.

New Mexico: (Leonian, July 1). Very abundant, especially in low, wet fields.

Nebraska: (Result of Cereal Disease Survey, June 27 to July 3). Found in 63 out of the 67 fields inspected in amounts ranging from 10 to 100% (average 39%). It occurred in practically uniform amounts in all counties visited.

North Dakota: (Bolley, July 15). This rust started early in the spring on seedling plants and was general throughout the state, resulting in heavy defoliation in the red stage at this time on most varieties of wheat.

Ohio: (Results of Cereal Disease Survey, June 12 to July 3). Found in 212 of the 283 fields inspected in amounts varying from a trace to 100% (average 22.8%). Generally distributed throughout all counties with the exception of Delaware, Franklin, Lucas and Lorraine.

Pennsylvania: (Result of Cereal Disease Survey, July 8 to 18). Found in 88 out of 105 fields inspected in amounts ranging from a trace to 65% (average 16.4%). Lancaster County showed the smallest amount of disease but it was very prevalent in all of the other counties inspected.

Tennessee: (May 30 - June 7.) Found in 159 out of 197 fields inspected in amounts varying from a trace to 100% (average 29.7%). Prevalent in all counties.

Black chaff caused by Bacterium sp.

Iowa: (Results of Cereal Disease Survey, June 27-July 19.) Reported from slight to very severe damage in 108 of the 214 fields examined.

Kansas: (Melchers, August 1.) From a trace to moderate infections in some fields. No damage recorded.

Minnesota: (Bisby, July 15.) Reported very general by cereal disease scouts, but none of the specimens sent in have shown the disease.

Missouri: (Results of Cereal Disease Survey, May 31-June 27.) Recorded from 285 out of the 562 fields examined in amounts ranging from very slight to very abundant. One field in Scott County was reported as showing 100% infection of the plants.

Montana: (Jennison, August 1.) In no instances have definite cases of black chaff been found even in districts where the disease caused from 50 to 90% reduction last year. Occasional leaf lesions have been seen, however, which may have been caused by the black chaff organism.

Nebraska: (Results of Cereal Disease Survey, June 27-July 3.) Found in 31 out of 67 fields inspected in amounts varying from very slight to severe.

North Dakota: (Bolley, July 15.) Disease not present in destructive form. Only traces have been apparent in fields examined.

Ohio: (Results of Cereal Disease Survey, June 12-July 3.) Reported from 2 of the 283 fields inspected in slight and moderate amounts. Both cases were found in Darke County.

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Found in 3 of the 177 fields inspected in slight amounts.

Glume and leaf spots caused by Septoria spp.

Illinois: (Results of Cereal Disease Survey, June 18-28.) Three slight infections and one of 10% reported.

Missouri: (Results of Cereal Disease Survey, May 31-June 27.) Present in amounts from very slight to very abundant in 200 of the 562 fields inspected.

Ohio: (Results of Cereal Disease Survey, June 12-July 3.) Found in 116 out of the 283 fields inspected in amounts ranging from very slight to severe.

Pennsylvania: Found in 32 out of the 105 fields inspected (slight and severe).

Tennessee: (Results of Cereal Disease Survey, May 30-June 7.) Found in 108 out of the 177 fields inspected (very slight to severe).

North Dakota: (Bolley, July 15.) This root and seedling trouble has been very destructive throughout the year and generally throughout the state in fields and regions of rather constant cropping and destructiveness in many cases depends largely on the condition of the seed sowed. It is perhaps the most destructive excepting scab in scab epidemic invasions. The species of Helminthosporium constitute perhaps the most destructive wheat disease in this state this year.

South Dakota: (Champlin, July 15.) Considerable evidence on glumes especially of Durum varieties. Grains also affected.

Other diseases

Ergot, caused by Claviceps purpurea, is reported as a result of the Cereal Disease Survey, June 18 to 28, from one field in Mason County, Illinois, with a very slight infection.